

8.5 Uses of Fluids

I. Archimedes Principle

A. Buoyancy is the ability of a fluid (liquid or gas) to exert an upward force on an object immersed in it

1. The upward force applied by buoyancy is the buoyant force

2. The amount of buoyant force will determine if the object will sink or float in a fluid

B. Archimedes principle - the buoyant force is equal to the weight of the fluid displaced by an object

→ see Figure 8-18, p. 235

II Pascal's Principle - states that pressure applied to a fluid is transmitted unchanged throughout the fluid

ex: 8-19, p. 236

A. Pascal's Principle explains how

a hydraulic lift works

III. Bernoulli's Principle - as the velocity of the fluid increases, the pressure exerted by the fluid decreases

→ ex: how a wing on a plane works

Figure 8-20, p. 237

A. Windy Cities

1. Venturi Effect - fluids flow through narrow spaces, as a result of the increase in speed the pressure of the fluid drops